SECTION II

Ideally, only applicants possessing the knowledge and skill level needed to drive safely and lawfully would be licensed to drive on California highways. Progress toward this ideal requires the development of task-relevant performance standards and the use of reliable and valid assessment instruments. The standard written and drive tests are periodically reviewed and subjected to various forms of psychometric analysis. Alternative testing approaches are proposed and evaluated in an attempt to develop improved licensure screening instruments.

An equally important objective of the licensing tests is to motivate the acquisition of safe driving information and skills. There are several advantages to linking educational objectives and systems to the examination process. First, it avoids the necessity of establishing separate program mechanisms and different facilities. Second, it minimizes use of the applicant's time. Third, the use of tests as a means of teaching has been found to be an effective technique in other disciplines, especially when some pretest preparation has occurred and programmed learning feedback is incorporated into the test. Fourth, and perhaps most important, driver licensing tests have extremely limited potential as devices for "screening out" accident-prone drivers. Therefore, use of testing as an educational and quality assurance tool offers more potential benefits without compromising screening objectives.

TITLE: Report to the California State Legislature, in Accord with Assembly Concurrent Resolution 67, 1969 Legislative Session, Wakefield

AUTHOR(S): California Department of Motor Vehicles

DATE: January 1971

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: ACR 67

NTIS NUMBER: PB-267740/AS

PROJECT OBJECTIVE:

To comply with Assembly Concurrent Resolution 67, (1960 Legislative Session) by conducting a pilot study of the effects of waiving the knowledge test for renewal applicants.

SUMMARY:

Initial Report

This study investigated two test waiver paradigms: (1) blanket waiver of the written knowledge test for all renewals, irrespective of driving record, and (2) limited test waiver for drivers with clean prior driving records. The original 1971 legislative report, finding no evidence of a significant impact on subsequent accidents, recommended that neither of the test waiver programs be implemented at that time. This recommendation was largely based on the fact that any cost savings resulting from eliminating the written test would be extremely small.

Follow-up Report

As mentioned in the 1971 report, the use of a longer follow-up period and the search for significant differences among subpopulations of drivers were to be explored in a future report. This additional (unpublished) analysis confirmed the conclusions reached in the prior study, with the following exceptions:

1. While reward in the form of a congratulatory acknowledgment letter plus a waiver of the written knowledge test still tended to increase the probability that a good driver would maintain a conviction-free driving record, its positive effect on subsequent conviction frequency was no longer statistically significant. This suggested that the original effect was transitory, dissipating after six months.

2. Reward in the form of an acknowledgment letter alone significantly decreased the probability of a good driver's remaining accident-free in some subgroups. Young married drivers who received only acknowledgment letters had more than twice as many accidents as did their counterparts in both the letter-waiver and control groups. Older single drivers in the letter-only group had nearly three times the number of accidents as did their counterparts in the letter-waiver group. Although the accident rate for older single drivers receiving the congratulatory letter alone was almost twice that of the control group, this difference was not significant.

3. The negative cost-benefit figures reported in the original study were no longer applicable, since a changed renewal notice process allowed for the mailing of additional materials (reward letter, etc.) without additional postage cost.

The original and follow-up studies warrant the following conclusions:

1. The reward waiver program did not reduce accidents and, in light of more recent studies (Report #60, Harrington & Ratz, 1978) would not present sufficient cost savings to warrant implementation in the form evaluated here.

2. There was no evidence from the studies to show that the written test had traffic safety value; however, the study design did not address either the motivational impact the test may have had in causing drivers to prepare for it, or the long-range effects its elimination might have.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

The Department accepted the recommendation that neither program be implemented.

SUPPLEMENTARY INFORMATION:

A summary of the follow-up analysis "*An analysis of two test waiver strategies for renewing driver licenses"* by Kuan et al. was presented at the April, 1982 meeting of the Western Psychological Association, Sacramento, CA,

TITLE: An Evaluation of California's Oral Licensing Examination

AUTHOR(S): David M. Harrington

DATE: March 1973

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: 40

NTIS NUMBER: PB-222966

PROJECT OBJECTIVE:

To analyze the cost and effect of orally examining illiterate applicants.

SUMMARY:

An analysis was made of the Department's method of testing illiterate applicants. These oral testing methods included a recording asking questions about signs and laws, the use of interpreters, and person-to-person tests involving gestures, sketches, and so forth. The aim of this testing procedure was to give illiterate applicants every opportunity to show that they possessed sufficient knowledge of the traffic laws to meet the legal requirements for licensing.

Due to the characteristics of the applicants and of the tests, the failure rate was very high—only 49% passed on their first attempt at the test, compared to a pass rate of 88% on the written knowledge examination. The amount of examiner time spent on this type of test made it quite expensive. In 1973, it cost approximately $5.00 to test each oral applicant, compared to three cents for the regular written test. Testing its approximately 20,000 oral applicants per year cost the department approximately $100,000.00 more than it would have cost to test a similar number of literate applicants.

The study found no significant difference between the accident rate of oral tests and that of other drivers.

Three approaches to improving the oral test were recommended for further study: (1) an entirely pictorial test, (2) an upgrading of the standard recorded oral test involving tape cassettes and picture books, and (3) the use of audio-visual testing machines.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

This study led directly to the oral test study (cited below) that was contracted to the University of Southern California (Margaret Jones). That study investigated five alternate ways to test illiterate applicants that would be instructive but not require a high level of verbal ability to pass. Jones found no significant differences in fail rates among the five modes of audio-visual testing, and proposed that pictorial instructions and audio cassettes be used together to test both literate and illiterate applicants. The Department decided not to implement the consultant's recommendations.

SUPPLEMENTARY INFORMATION:

See Jones, M., (Page II-12), *Oral Testing of Driver License Applicants*, Traffic Safety Center, Institute of Safety and Systems Management, University of Southern California.

TITLE: An Evaluation of the Drive Test as an Examination Requirement for Drivers Previously Licensed in Another State

AUTHOR(S): David M. Harrington

DATE: December 1973

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: 44

NTIS NUMBER: PB-226849/AS

PROJECT OBJECTIVE:

To determine if waiving the drive test for original applicants previously licensed in another state would be detrimental to their driving records.

SUMMARY:

During one time period, 15,102 out-of-state applicants were given the drive test as usual. During another time period, 23,647 such applicants had their drive test waived. Driver record data were collected for the six-month period subsequent to the date when the drive test was (or would have been) administered. There were no significant differences between the groups on numbers of accidents, fatal and injury accidents, or convictions.

The results did not support differential licensing standards for different age groups or for different states.

Approximately 8% of those given a drive test failed on their first attempt. Almost all eventually passed. Eight months after the study period, 97.74% of the waiver group were licensed, as opposed to 95.84% of the test group, so that the drive test had only a slight screening effect.

Elimination of the drive test requirement for out-of-state applicants would save 198,000 drive tests per year for an annual savings of $381,000.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

The recommendation to eliminate the drive test requirement for out-of-state applicants was implemented by DMV at the end of 1973.

SUPPLEMENTARY INFORMATION:

None.

TITLE: Audio-Visual Traffic Safety Materials (House Resolution 81, McAllister)

AUTHOR(S): California Department of Motor Vehicles

DATE: January 1974

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: Unnumbered

NTIS NUMBER: PB-267838/AS

PROJECT OBJECTIVE:

To conduct a feasibility study concerning use of audio-visual testing.

SUMMARY:

The department surveyed the literature concerning audio-visual presentations and ascertained that: (1) more than half of the states had experimented with audio-visual equipment in driver licensing; (2) the use of audio-visual equipment was invariably accompanied by equipment, test content, and operational problems; (3) no state had adequately evaluated the results of audio-visual testing from the standpoint of accident reduction effects; (4) one state (Washington) had implemented statewide audio-visual license testing; (5) public acceptance of audio-visual testing had been excellent; and (6) one state (West Virginia) had pilot-tested the approach of letting people watch a film while waiting to be tested. This was discontinued as it led to field office congestion.

A survey of educational literature suggested that the best approach to a teaching/testing situation involves programmed learning and immediate feedback—with feedback relevant to the examinee's response. The Department could not locate mass-produced commercial audio-visual equipment capable of supplying all of the features desired; however, such equipment could have been developed.

A project was designed to implement audio-visual testing on a pilot basis in selected field offices. This project was to evaluate different types of audio-visual testing to determine which approach resulted in the greatest learning. If positive results were obtained, a larger study would be undertaken to determine if the approach also reduced traffic accidents.

At the time of the study, equipment costs alone (were California to implement statewide audio-visual testing) were estimated to be in excess of two million dollars. Additionally, certain operational difficulties (e.g., additional personnel, field office construction) were anticipated. Departmental management strongly felt that a pilot implementation to ascertain and solve such problems, and to provide adequate evaluation of the methods, would be a most desirable first step.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

The above-described pilot study was implemented. See Kelsey et al., Report #74.

SUPPLEMENTARY INFORMATION:

None.

TITLE: An Evaluation of California's "Good Driver" Incentive Program

AUTHOR(S): Richard M. Harano & David M. Hubert

DATE: January 1974

REPORT NUMBER: 46

FUNDING SOURCE: Federal Highway Administration

NTIS NUMBER: PB-235032/AS

PROJECT OBJECTIVE:

To study the effects of rewards and/or incentives in the form of one-year license extensions (no testing or visit to field office required) for drivers with one-year-clean prior records.

SUMMARY:

Extensions produced no reliable effect on convictions, and opposite effects on collisions for "reward" and "incentive" conditions.

Drivers who were free of collisions and convictions over the year preceding license expiration were sent a letter notifying them of a one-year license extension issued as a "reward" for this accomplishment. They were also told that at the end of the following year, should their records again be clean, they would be recontacted and given a second extension. The results of this reward program indicated no reliable effect on subsequent traffic convictions, and various detrimental effects on subsequent collisions, for drivers in the program as compared to uncontacted controls. The detrimental effects were not significant for drivers whose prior records were clean for three entire years, suggesting that a one-year period was not a sufficient barometer of a person's driving.

Drivers having one or more prior entries were involved in an incentive program. These drivers were sent a letter describing their eligibility for a one-year license extension, which would be granted provided that their records remained free of collisions and convictions over the subsequent year. The results of this incentive program indicated no significant effects on subsequent convictions but various beneficial effects on subsequent collisions for drivers in the program, as compared to controls.

It was recommended that a driver improvement program be established on an experimental basis, in which drivers with prior entries would be involved in an ongoing incentive program in conjunction with a group educational meeting. At the meeting, appropriate behaviors could be identified and rehearsed. The incentive (an extension, a reduction in point count, or some other pre-identified reinforcer) would be expected to increase the future likelihood of the newly learned behaviors. A program of this kind, concentrating on marginally deviant drivers, would have had the advantage of reaching a much larger number of drivers than the driver improvement methods in use at that time.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

The department decided not to implement the incentive program, but concluded that efforts and research devoted to developing effective strategies should continue.

SUPPLEMENTARY INFORMATION:

The study influenced the development of Assembly Bills 583 and 777 (Calvo), passed in 1978 and 1979, respectively. AB 583 made it possible for the department to extend, for two years, the licenses of up to 10% of the driving population with clean four-year prior records. AB 777 authorized a four-year driver license extension (essentially equivalent to a renewal by mail) for drivers under age 70 with clean four-year prior records. Later legislation (Speraw) provided for up to two consecutive

renewals by mail for drivers under 70 with clean two-year prior records. The Robbins bill then allowed one non-responsible accident in the two-year period. (See Kelsey et al., Report #93, and Janke, Reports #118 and #101.) For incentive studies, see Marsh, Report #66, and Kadell, Report #91.

TITLE: An Evaluation of California's Drivers Licensing Examination

AUTHOR(S): Dell R. Dreyer

DATE: March 1976

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: 51

NTIS NUMBER: PB-267414/AS

PROJECT OBJECTIVE:

To assess the ability of the written knowledge test and the drive test to screen out accident-prone drivers; to provide descriptive data on the licensing process, with particular interest in the performance of older drivers.

SUMMARY:

During two 2-week survey periods, data were collected on a total of 8,905 California driver's license applicants. Only the written test appeared to have some predictive validity—better performance tended to be associated with fewer accidents and convictions. Females tended to do better on the written test, worse on the drive test, and have fewer accidents than males.

The percentage of applicants licensed within 6 months of the survey date (the normal retention period for driver's license applications at that time) was 75%, 95%, and 91% for first-time, out-of-state, and renewal applicants, respectively. Within two years of the survey date, the percentage licensed had increased to 95%, 99%, and 96%, respectively.

Older renewal applicants performed worse on both the written and drive tests than did those who were younger. There was no difference in the percentage ultimately screened out by the written test for different age groups. The drive test did apparently prevent a larger percentage of older applicants from getting their licenses renewed.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

No action was recommended, as changes in both written and drive tests had occurred since data collection for this study. These changes were critically evaluated in subsequent studies (see Selective Testing project series: Harrington, Report #44; Carpenter, Reports #52, #61, #63, #65; Ratz, Reports #62, #64).

SUPPLEMENTARY INFORMATION:

None.

TITLE: Oral Testing of Driver's License Applicants

AUTHOR(S): Margaret Hubbard Jones, Traffic Safety Center, Institute of Safety and Systems Management, University of Southern California

DATE: June 1976

FUNDING SOURCE: Under contract to DMV through an Office of Traffic Safety grant to the Division of Drivers Licenses (Sam Marchi, project administrator)

REPORT NUMBER: Unnumbered

NTIS NUMBER: None

PROJECT OBJECTIVE:

To gather information about several potential test modes which could be used with illiterate applicants and which would serve an instructional purpose without putting a premium on verbal ability.

SUMMARY:

A pilot study tested five modes of presentation and found no differences in fail rates. Black-and-white picture books coupled with audio cassettes in English or Spanish were used for the main study. Nine hundred twenty-nine applicants participated, 540 being illiterate (all those available) and the remainder literate volunteers. Passing score was set at 64% (86% being required on the standard test). The passing rates were 35% for illiterate and 72% for literate. It was found that illiterates were mainly male, tended to be older, had less education, and reported driving more miles per year than literate drivers.

The author concluded that the test used had face validity and was fair to illiterates. She felt that the contents were in line with those tested for literate applicants and that learning was produced by the procedure. Report recommendations included continuing development, a large-scale field test, development of equipment similar to that used for voting, use of the test to train drivers, setting high passing scores, and use of the test for all applicants--literate and illiterate alike.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

The Department decided not to implement these recommendations, due to concerns with the test's high level of difficulty and logistical considerations.

SUPPLEMENTARY INFORMATION:

None.

TITLE: An Evaluation of the California Driver Knowledge Test and the University of Michigan Item Pool

AUTHOR(S): David W. Carpenter

DATE: April 1976

FUNDING SOURCE: Federal Highway Administration

REPORT NUMBER: 52

NTIS NUMBER: PB-253935/AS

PROJECT OBJECTIVE:

To evaluate both the written DMV driver licensing test and a large sample of driver knowledge test items selected from the University of Michigan's Highway Safety Research Institute (HSRI) item pool.

SUMMARY:

Test forms were administered to 48,000 California driver's license applicants. The variables analyzed were subject's sex, age, education, annual mileage, and prior six-year driving record in relationship to test form and item scores. New test forms were created and were compared to DMV forms.

For each test form, the highest test score correlation obtained was with applicant's education, although education had no relationship to accidents or convictions. For all DMV test forms combined, correlations of total scores with driving record variables were all significant, indicating that renewal applicants with better prior driving records obtained higher test scores. Original drivers' license applicants scored lower than renewal applicants.

HSRI items and test forms were more related to applicant's biographical variables than were DMV items and test forms. Forms created with HSRI items from the initial HSRI item-pool screening were less related to driving record than were DMV forms. Final forms, created with items that were the most accident-related, were no more or less related to driving record than were DMV forms.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

Some of the items and test statistics were used for constructing tests for the Department's selective testing project.

SUPPLEMENTARY INFORMATION:

None.

TITLE: The Effectiveness of an At-Home Drivers' Licensing Law Test

AUTHOR(S): David M. Harrington & Michael Ratz

DATE: March 1978

REPORT NUMBER: 60

FUNDING SOURCE: Special state appropriation

NTIS NUMBER: PB-284717/AS

PROJECT OBJECTIVE:

To explore new approaches to testing which would cost less, be more convenient to the public, and reduce accidents and convictions.

SUMMARY:

Those drivers with no accidents or convictions within the preceding three years were sent a pamphlet self-test, a sheet with the answers, and a specially coded notice to renew their driver's license. When they presented the renewal notice at the field office, their regular written knowledge test was waived.

Drivers with one accident or one conviction during the past three years were sent a pamphlet test, a sheet on which to mark their answers, and a renewal notice. When they presented the answer sheet and renewal notice, their regular written test was waived. Control groups comprised of similar drivers receiving DMV's regular written test were included to provide a comparison baseline.

There were no significant overall differences in subsequent accident and conviction rates between the control and treatment groups, but there was some evidence of a detrimental effect for certain subgroups. Although the new experimental programs cost less operationally, the cost of the increased accidents would have been greater than the operational savings.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

Since the new at-home tests were not cost-effective compared to the standard field office testing, it was recommended that they not be implemented; management concurred.

SUPPLEMENTARY INFORMATION:

None.

TITLE: The Effects of Administering Written Tests Stressing Knowledge of Safe Driving Principles to Renewal Driver's License Applicants

AUTHOR(S): David Carpenter

DATE: June 1978

FUNDING SOURCE: Special state appropriation

REPORT NUMBER: 61

NTIS NUMBER: PB-286553/AS

PROJECT OBJECTIVE:

A new licensing test series stressing knowledge of safe driving principles and recent law changes was administered to a group of California driver's license renewal applicants. The primary purpose was to determine if the two series of test forms, testing knowledge of different types of information, differentially affected subjects' subsequent driving records when used in the California DMV knowledge testing program. A secondary objective was to determine the degree of relationship between test scores and driving performance.

SUMMARY:

The data for the six-month period following written knowledge testing revealed no statistically significant differences between experimental and control group (standard test) driving-record means, indicating that the administration of "safe driving" written tests did not result in a change in collisions or convictions. Correlations of test scores

with driving record variables were similar in magnitude for both the DMV and safe driving test series. All correlations between numbers of items wrong and prior or subsequent driving record were positive and statistically significant, indicating a slight tendency for drivers who made fewer errors on either test series to have fewer collisions and convictions than drivers who made more errors.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:
Because no identifiable benefits appeared likely from adopting the new forms for renewal applicants, and because additional costs would be incurred with their adoption, the standard law tests were retained for renewal applicants.

SUPPLEMENTARY INFORMATION:
None.

TITLE: The Effects of Written Licensing Tests Stressing Knowledge of Safe Driving Principles for Intermediate Record Renewal Applicants

AUTHOR(S): David Carpenter

DATE: July 1978

FUNDING SOURCE: Special state appropriation

REPORT NUMBER: 63

NTIS NUMBER: PB-286561

PROJECT OBJECTIVE:
To determine the comparative effects of a new, longer test, stressing knowledge of safe-driving principles, on subsequent driving record. The new tests were administered to renewal applicants who had moderate numbers of collisions and convictions on record, with a control group of comparable drivers receiving standard DMV law tests.

SUMMARY:
The data for the 12-month period following written knowledge testing revealed no statistically significant differences between experimental and control group driving-record means, indicating that the administration of safe-driving written tests did not result in a significant reduction in collisions or convictions. Correlations of test scores with driving-record variables were similar in magnitude for both the DMV and safe-driving test series, and indicated a slight tendency for drivers marking fewer wrong answers on either test series to have fewer collisions and convictions before and after testing than did drivers who made more errors.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:
Because no identifiable safety benefits appeared likely from adopting the expanded safe-driving test forms, but additional costs would be incurred, this component of the selective testing program was not recommended for implementation. Departmental management concurred with this recommendation.

SUPPLEMENTARY INFORMATION:
None.

TITLE: An Evaluation of the California Drive Test in Theme and Variation. Volume I: Treatment Development and Preliminary Evaluation

AUTHOR(S): Michael Ratz

DATE: August 1978

FUNDING SOURCE: Special state appropriation

REPORT NUMBER: 62

NTIS NUMBER: PB89-190847/AS

PROJECT OBJECTIVE:

To develop two modifications of the standard California drive test--the first to make the test more difficult, the second to make the test more comprehensive and more difficult. In addition, the relationships between scores on the standard and new, more comprehensive, test and biographical and driver record data were to be obtained.

SUMMARY:

Two new tests were developed, both of which had a first-attempt fail rate of approximately 50%. Parallel parking was selected for use with the new tests on the basis of its correlation with drive test scores and its dual-rater reliability. Both the standard and the more comprehensive test were significantly correlated with age, with older drivers tending to receive lower scores. The new test was significantly correlated with sex, with males tending to score higher. The standard test was not significantly correlated with sex. Neither drive test was significantly correlated with subsequent accident records. Both tests were significantly correlated with convictions in that higher scoring applicants showed a slight tendency to receive more traffic convictions.

No more individual test items were significantly correlated with either accidents or convictions than could be expected by chance. (In no correlations involving accidents or convictions was a mileage correction made.)

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

The tests developed in this study were used in a later experiment, where they were compared to the standard test to determine if the use of either could result in an accident reduction (see Report 62, Volume II).

SUPPLEMENTARY INFORMATION:

None.

TITLE: The Effects of a Traffic Safety Film or a Drive Test with Counseling Session for Renewal Drivers Licensing Applicants with Poor Prior Records

AUTHOR(S): Michael Ratz

DATE: November 1978

FUNDING SOURCE: Special state appropriation

REPORT NUMBER: 64

NTIS NUMBER: PB89-185292/AS

PROJECT OBJECTIVE:

To determine if an expanded "safe driving" written knowledge test and a drive test with counseling or traffic safety film would improve the records of renewal applicants with poor three-year prior records.

SUMMARY:

Individuals seeking to renew a California driver's license whose prior 3-year driving record reflected two or more accidents, four or more convictions, or one accident and three or more convictions, were randomly assigned to one of three groups of 5,000 subjects each.

The first group (control) was required to pass the standard California written knowledge test.

A second group was required to pass a written test composed of 45 "safe driving" items. After passing the test each subject was required to view a 20-minute film which focused on defensive driving practices.

A third group was required to pass a 45-item safe-driving written test and a drive test. After subjects passed the drive test the examiner counseled them on their driving records, reinforcing the discussion with reference to unsafe behaviors observed on the drive test.

There was an increase in fatal and injury accidents and a decrease in convictions, both of which reached the .10 level of significance, for subjects taking the drive test. No significant differences were found for subjects who viewed the traffic safety film.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

Because of the extra cost associated with implementing the program and the evidence that an accident increase would result, implementation was not recommended.

SUPPLEMENTARY INFORMATION:

None.

TITLE: An Evaluation of the California Drive Test in Theme and Variation. Volume II: Final Report

AUTHOR(S): Michael Ratz

DATE: December 1978

FUNDING SOURCE: Special state appropriation

REPORT NUMBER: 62

NTIS NUMBER: PB89-190847/AS

PROJECT OBJECTIVE:
To determine if a longer, more "comprehensive" drive test, or the standard drive test with parallel parking and a higher fail rate, would improve the subsequent driving records of previously unlicensed applicants.

SUMMARY:
Thirty-six thousand previously unlicensed applicants for a California driver's license were given one of three treatments.

The first group (control) was given the standard California drive test. The failure rate for the first drive test attempt was held equal to the current statewide average.

A second group was given the standard California drive test with scoring altered so that 50% of the subjects failed on their first drive test attempt.
They were also given a test on parallel parking.

A third group was given a drive test which required approximately twice as long to complete as the standard test and included substantially more driving in high-density traffic. The first-attempt failure rate for this group was 50%.

One-year subsequent accident and conviction records were analyzed to determine treatment effect. No significant differences were found.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:
Because the results did not indicate that there were benefits to be expected from implementing either program, and because both programs would be more expensive to administer, implementation was not recommended.

SUPPLEMENTARY INFORMATION:
None.

TITLE: The Effects of Adding Safe Driving Content to Written Law Tests Administered to Original Drivers License Applicants

AUTHOR(S): David Carpenter

DATE: December 1978

FUNDING SOURCE: Special state appropriation

REPORT NUMBER: 65

NTIS NUMBER: PB89-185268/AS

PROJECT OBJECTIVE:
A group of original California driver license applicants, composed of experienced (out-of-state) drivers and inexperienced (first-time) applicants, were administered new, expanded written licensing tests. Questions testing Vehicle Code knowledge and knowledge of non-codified safe driving principles were included in order to evaluate possible differential effects on subsequent driving record. The tests were also administered using different passing scores.

SUMMARY:

The results for the 12-month period following written testing indicated no differential effects on subsequent driving records for out-of-state drivers. However, first-time applicants who were administered new tests having similar pass score thresholds as the standard test had significantly more collisions in the year following testing compared to the control group, which received the standard DMV law test. However, there was no evidence of an accident increase among subjects receiving the new test in conjunction with a more stringent passing score requirement. Test score correlations with subsequent driving records were similar for the two tests. Those who had fewer errors had fewer traffic convictions than applicants who made more written test errors. But because there was no evidence that implementing the new tests would result in a decrease in accidents, continuation of the standard test was recommended.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

The recommendation was followed.

SUPPLEMENTARY INFORMATION:

None.

TITLE: Development of a Provisional Licensing Program for New California Drivers

AUTHOR(S): David W. Carpenter, Bart F. Furtado, Keith H. Lindholm, & Lowell Gates

DATE: February 1980

REPORT NUMBER: 73

FUNDING SOURCE: Office of Traffic Safety and National Highway Traffic Safety Administration

NTIS NUMBER: PB80-180854

PROJECT OBJECTIVE:

To examine the feasibility of provisional licensing procedures for new California drivers and to analyze potential program components.

SUMMARY:

Provisional (graduated) licenses generally involve several steps and require the new applicant to maintain a safe record and comply with certain restrictions before full driving privileges are granted. In order to study the possibility of provisional licensing for young California drivers, a literature review was conducted to identify and summarize young-driver problems. Components of provisional and probationary licensing programs were also identified and analyzed, leading to the development of an initial model.

Two surveys were performed to determine the feasibility of the initial provisional licensing model. The first survey, conducted by an independent research firm, gauged public opinion on various aspects of the model. The second survey was used to gather comments from persons in a variety of traffic safety disciplines. These surveys indicated substantial support for the provisional licensing concept, lack of support for

additional fees to fund a provisional licensing program, and lack of support for mandatory seat belt and motorcycle helmet use for young drivers.

The final model was developed following these surveys. This model included such elements as a distinctive provisional license with a one-year term, a mandatory instruction permit period, parent participation, various license restrictions for young problem drivers, a youth-oriented driver improvement program, and driver manuals for new drivers. The report recommended implementing this model for original applicants aged 17 and under on a pilot basis. A quasi-experimental (multivariate time series) design was to be used to evaluate the traffic safety effects of provisional licensing in terms of accidents and convictions. Other options and less comprehensive models with lower ongoing costs were also presented for management consideration.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

This report was used in further developing a provisional licensing model (*A Recommended Provisional Licensing System for California*, California Department of Motor Vehicles, Division of Driver Safety and Licensing, April 1982), which led to a demonstration project authorized by SB 483 (Speraw). The Department implemented the program for original applicants under age 18 on October 1, 1983.

SUPPLEMENTARY INFORMATION:

See Hagge and Marsh, Report #116.

TITLE: Application of Audio-Visual Presentation and Various Feedback Methods to Drivers License Testing: An Evaluation of Learning Effects

AUTHORS: Shara Lynn Kelsey, Beverly Sherman, & Michael Ratz

DATE: February 1980

REPORT NUMBER: 74

FUNDING SOURCE: Office of Traffic Safety and National Highway Traffic Safety Administration

NTIS NUMBER: PB80-182744

PROJECT OBJECTIVE:

To develop and demonstrate the effectiveness of an audio-visual driver's license testing program.

SUMMARY:

In an effort to determine the relative efficacy of different testing materials and modes of presentation and feedback in teaching traffic safety concepts, a study was conducted to measure item retention and/or generalization of learning brought about through the driver's license testing process.

A group of 4,000 class 3 (standard passenger vehicle) driver's license renewal applicants were assigned to one of five different test modes: (l) audio-visual (A-V) differential feedback, (2) A-V correct-answer-only feedback (both presented by color motion pictures on individual viewing screens), (3) latent-image written tests

(differential feedback developed by chemical pens), all of which were composed of 15 new items, (4) the standard written knowledge test presented on paper, with delayed feedback given, or (5) the standard written test questions projected as slides on the A-V viewers, with no feedback on performance. Learning was measured by the applicant's performance on a second or posttest administered on the A-V equipment immediately after the first test; included were items repeated from the first test as well as unfamiliar but related (unique) items which required generalization of knowledge concerning how to handle potentially dangerous driving situations.

On the unique items, the only significant difference found was that the standard written slide group was superior to any of the new-item-content groups; however, all five groups were significantly different on post-test repeat item scores. A-V correct-answer-only feedback subjects made the fewest errors, followed by A-V differential feedback, latent image, standard written, and finally standard slide subjects. Education was found to be a more important factor for subjects taking the new tests than for those taking the standard test. For applicants taking the tests in English, there was evidence of at least some degree of learning for all test modes. However, for applicants tested in Spanish, only those groups taking the new tests showed evidence of learning--those taking the standard written test did not (on the average) improve upon their pretest score when taking the posttest.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

While the most effective learning was observed with A-V presentation employing immediate correct-answer feedback, further research was considered necessary to measure the long-term effects on traffic safety before a cost-benefit analysis could be performed or implementation considered. However, given constraints on governmental expenditures, no further departmental research on audio-visual testing systems was contemplated at that time.

SUPPLEMENTARY INFORMATION:

A preliminary paper on the experimental tests and research design was presented at a conference in Germany by R. S. Coppin—"Audio-Visual Driver License Response System—A Demonstration Project." An English translation of the paper appears in the conference proceedings *Entwicklungen und Konzepte fur die Fahrerlaubinsprufung*, Verlag TUV Rheinland, October 14, 1976.

TITLE: Traffic Safety Impact of the Extension of Driver Licenses by Mail for Renewal Applicants with Clean Prior Driving Records

AUTHOR(S): Mary K. Janke & Shara Lynn Kelsey

DATE: December 1981

REPORT NUMBER: 80

FUNDING SOURCE: Office of Traffic Safety and National Highway Traffic Safety Administration

NTIS NUMBER: PB82-209198

PROJECT OBJECTIVE:

To evaluate the traffic safety impact of extending driver licenses by mail for drivers with clean prior four-year records.

SUMMARY:

Drivers under the age of 70, whose prior 4-year accident and conviction records showed no entries when examined two months prior to the date of their driver license expiration, were randomly assigned either to a group required to renew their licenses in the standard manner or to a group offered the opportunity to receive a four-year license extension by mail (AB 777, Calvo II). A related study (AB 583, Calvo I) involved comparing clean-record drivers of any age, offered two-year extensions, with a group required to renew in person.

There was no evidence that extending licenses by mail affected accidents or convictions during the period 18 months subsequent to the date on which renewal or extension notices were sent. This was true for the driver group as a whole and for all subgroups, with two exceptions. In the four-year extension program, extended drivers under 30 showed a significant conviction increase; however, since this effect was not found in the two-year extension program, there was a substantial likelihood that it was due to chance. Drivers 70 years of age and older were excluded from the four-year extension program, but among two-year extension group drivers, those over 69 had significantly fewer accidents than their counterparts in the regular renewal group.

A subgroup of drivers who were offered extensions because their records were clean at the time of selection, but who were later found to have had an accident or a traffic citation prior to selection (which failed to appear on the record at selection due to the time lag between occurrence of an incident and record update) also showed no evidence of an effect due to the extension program. The two-year extension evaluation showed similar results.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

The program offering four-year extensions to drivers under age 70 superseded the two-year extension program, which was discontinued. Exclusion of drivers aged 70 or above from the extension program was implemented on the basis of considerations other than demonstrated traffic safety effect; as noted above, older drivers in the extension program had better records than their controls.

SUPPLEMENTARY INFORMATION:

Janke, M. K., & Kelsey, S. L. Traffic safety impact of the extension of driver licenses by mail for renewal applicants with clean prior driving records. *Proceedings of the Second Symposium on Traffic Safety Effectiveness (Impact) Evaluation Projects*. Fredericksburg, VA: May 1982. Presentation at the *Western Psychological Association Annual Conference*, Sacramento, CA: April 1982. Kelsey, S. L., & Janke, M. K. (1983). Driver license renewal by mail in California. *Journal of Safety Research*, *14*(2), 65-82.

This study reported results of an 18-month follow-up. See Kelsey et al., Report #93 for a 4-year follow-up.

TITLE: Pilot Test of the Written Words and Phrases Test

AUTHOR(S): Robert Hagge & Karen Frincke

DATE: June 1983

REPORT NUMBER: Unnumbered

FUNDING SOURCE: Departmental Budget

NTIS NUMBER: None

PROJECT OBJECTIVE:

To evaluate the written Words and Phrases Test (DL-140) and provide test and item statistics.

SUMMARY:

This study evaluated a 12-item written test (DL-140) that assessed understanding of the English words and symbols on traffic signs, which was administered to driver license applicants taking non-English translations of the 36-item written knowledge test. There were five versions of the test, each translated into five languages (Chinese, Japanese, Korean, Spanish, and Vietnamese).

All test versions of each language translation were analyzed. This was the first time that any version of the Chinese and Japanese translations, and two versions each of the Korean, Spanish, and Vietnamese translations, had been analyzed. Three versions of each of the Korean, Spanish, and Vietnamese translations had been piloted before and found to have unacceptably high and/or widely disparate fail rates. Subsequent revisions of these tests were analyzed in this study.

Test results from 3,379 first-attempt applicants were analyzed to determine test difficulty levels and to identify potentially faulty items. Results of the pilot showed that many test items had pass rates above 95% or below 60%, item-total correlations below .20, or non-functional distracters. Language groups differed on fail rate, with the Spanish group having the highest percentage of failures, and the Japanese group the lowest. Within only the Chinese and Korean languages were different test versions found to have significantly different fail rates.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

Study recommendations were to review certain test items, equalize form difficulty within the Chinese and Korean translations, improve item and test format, change the pass criteria, and repilot the revised tests. The Department implemented most of these recommendations.

SUPPLEMENTARY INFORMATION:

None.

TITLE: Evaluation of Ambulance Driver Knowledge Test

AUTHOR(S): Robert Hagge

DATE: July 1983

FUNDING SOURCE: Departmental Budget REPORT NUMBER: Unnumbered

NTIS NUMBER: None

PROJECT OBJECTIVE:

To evaluate the Ambulance Driver Examination (DL-5J) and to provide test and item statistics.

SUMMARY:

A pilot test was conducted in all field offices from February through April 1984. An analysis of test forms completed by first-attempt applicants provided the following information.

1. percent of responses on each alternative for each test item on each form;
2. percent correct responses and item-total correlation for each item on each form;
3. cumulative percent of total applicants by number of incorrect items for each form;
4. percent of total applicants failing, mean incorrect items, and reliability for each form; and
5. percent of total applicants failing and mean incorrect items for each applicant type on all forms combined.

Results of the evaluation indicated that changes needed to be made to the tests to increase item difficult and reliability. Recommendations for improvement were made.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

The tests were subsequently modified but not reevaluated.

SUPPLEMENTARY INFORMATION:

None

TITLE: Extending Driver Licenses by Mail: A 36-month Follow-Up of Driver Records

AUTHORS: Shara Lynn Kelsey DATE: October 1983

FUNDING SOURCE: Office of Traffic Safety and National Highway Traffic Safety Administration REPORT NUMBER: 88

NTIS NUMBER: None

PROJECT OBJECTIVE:

To evaluate the traffic safety impact of extending driver licenses by mail for drivers with clean prior four-year records.

SUMMARY:

This report is an update of Report #80 to the California Legislature in December of 1981 (Janke & Kelsey) on the traffic safety impact of license extension after 18 months of driving. It covers data on the three-year subsequent driving records of those California drivers who were randomly assigned either to a group which was offered license

extension by mail or to a group which was required to complete the regular in-person renewal process. Conclusions were:

1. There was no significant difference in either subsequent accidents or convictions between those who renewed in a field office and those who renewed by mail.

2. There was no evidence that younger (under 30) drivers responded more poorly to the extension than did other age groups.

3. There was no longer a significantly better accident record among extended drivers aged 70 and over; thus, there was no evidence that older persons respond more (or less) favorably to the extensions. However, older drivers were only offered 2-year extensions, so about 12 months of the 36-month period covered here followed a standard field-office renewal.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:
The program was continued as recommended.

SUPPLEMENTARY INFORMATION:
New legislation to relax the selection criteria for extensions went into effect for drivers whose licenses expired in January 1983 or later.

This report was published as Kelsey, S. L. Extending driver licenses by mail: A 36-month follow-up. *Journal of Traffic Safety Evaluation Research Review*, *3*(1), 7-20, 1984.

Also see Kelsey et al., Report #93, and Janke, Reports #101 and #118.

TITLE: License Extensions for Clean-Record Drivers: A Four-Year Follow-Up

AUTHORS: Shara Lynn Kelsey, Mary K. Janke, Raymond C. Peck & Michael Ratz

DATE: March 1985

REPORT NUMBER: 93

FUNDING SOURCE: Office of Traffic Safety and National Highway Traffic Safety Administration

NTIS NUMBER: None

PROJECT OBJECTIVE:
To evaluate the traffic safety effect of extending driver licenses by mail for drivers with clean prior four-year records.

SUMMARY:
Drivers whose prior four-year accident and conviction records showed no entries two months prior to the date of the expiration of their driver licenses were randomly assigned either to a group which had licensees renewed in the normal manner or a group which was offered the opportunity to receive a four-year license extension by mail.

There was no evidence that extending licenses by mail affected accidents or convictions during the period 18 months subsequent to the date on which renewal or extension notices were sent. This was true for the driver group as a whole and for subgroups of drivers in different age categories; the single exception was an increase in convictions among the under-30 drivers of the extension group. Another evaluation of drivers with four-year clean prior records who were offered a two-year license extension showed similar results overall; however, the age by treatment interaction on convictions was not replicated, and an analysis of drivers over the age of 70 revealed a significant reduction in accidents among the extension group.

A follow-up report on 36-month data again found no effects due to the extension program. Three years after the initial renewal notice, neither interaction found in the 18-month data remained. Caution must be used in comparing the three-year data with those in the two-year extension program, as the extension group (but not the controls) had experienced another renewal cycle.

The final report, covering 48-month data, found a slight (11%) increase in accidents for the extension group, although the difference was far from significant ($p>.10$). Supplemental Bayesian analysis resulted in a probability of .76 that there was at least some negative program effect on accidents. If the means for the sample reflected the true magnitude of the population difference, an increase of 13 accidents per 10,000 4-year clean drivers could be projected over the term of the offered license extension.

Analysis of the over-70 population at the end of their two-year extension term again found significantly fewer accidents in the extension group.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

New legislation to expand the selection criteria for extensions went into effect for drivers whose licenses expired in January 1983 or later.

SUPPLEMENTARY INFORMATION:

The report to the legislature (18-month data) was published as Report #80, *Traffic safety impact of the extension of driver licenses by mail for renewal applicants with clean prior driving records*, in December 1981 by Mary K. Janke and Shara Lynn Kelsey.

Janke, M. K., & Kelsey, S. L. Traffic safety impact of the extension of driver licenses by mail for renewal applicants with clean prior driving records.

Proceedings of the *Second Symposium on Traffic Safety Effectiveness (Impact) Evaluation Projects*. Fredericksburg, VA: May 1982.

Presentation at the *Western Psychological Association Annual Conference*, Sacramento, CA: April 1982.

Kelsey, S. L., & Janke M. K. (1983) Driver license renewal by mail in California. *Journal of Safety Research*, *14*(2), 65-82.

Kelsey, S. L., Janke M. K., Peck, R. C., & Ratz, M. (1985) License extensions for clean record drivers: A 4-year follow-up. *Journal of Safety Research*, *16*(4), 149-167.

On related topic (license renewal by mail for drivers with less than 4-year clean records), see Janke, Reports #101 and #118.

TITLE: The Role of Youth in Traffic Accidents: A Review of Past and Current California Data

AUTHOR(S): Raymond C. Peck

DATE: June 1985

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: Unnumbered

NTIS NUMBER: None

PROJECT OBJECTIVE:

To clarify the role of youth in traffic accident causation.

SUMMARY:

This paper notes that, based on past studies, it is clear that young drivers are overinvolved in traffic accidents, traffic violations and alcohol-related crashes. Part of the overinvolvement in crashes can be attributed to the greater incidence of traffic violations and high-risk driving behavior exhibited by young persons, particularly males. The evidence indicates that formal behind-the-wheel driver training has little or no impact on crash rates.

It is also stated that although empirical studies have yielded conflicting results, risk-taking has been advanced by numerous authorities as an explanatory construct for the high accident rate of young drivers.

The paper points out that risk perception and risk choice implicitly involve an attitude or sense of personal vulnerability and, in fact, recognition of vulnerability may be the single most important mechanism underlying risk taking. By invoking "personal vulnerability" as a maturational characteristic which increases with age, one might explain why risky driving decreases substantially at age 25-30. Unless one has a sufficient sense, cognitively and effectively, of being vulnerable to catastrophic events, there is little motivation to drive cautiously and defensively. If this conjecture has any validity, it leads to the pessimistic conclusion that not much can be done to short-circuit the process. In other words, the paper concludes, it may not be possible for any feasible countermeasure to make most 18-year-olds respond to the driving task like most 30-year-olds, other than the passage of 12 years. This theory could explain why driver training has proven ineffective in reducing the accident rates of young drivers.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

Not applicable.

SUPPLEMENTARY INFORMATION:

This paper was not published as a DMV report. It was published in *Alcohol, Drugs, and Driving*, *1*(1-2), 45-61, June 1985.

TITLE: The Effect of Renewal by Mail for Drivers with Less than Four-Year-Clean Records (Interim Report)

AUTHOR(S): Mary K. Janke

DATE: November 1985

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: 101

NTIS NUMBER: PB86-154069

PROJECT OBJECTIVE:

To evaluate the traffic safety impact of allowing drivers with a two-year-clean record, but less than a four-year-clean record, to renew their licenses by mail.

SUMMARY:

Under a demonstration program authorized by the Legislature (SB 483, 1982), almost 500,000 drivers less than 70 years of age, whose driving records showed no entries for the two years preceding the date of expiration of their licenses, and who had no major convictions or fatal accidents (but could have other driving record entries) within the four years preceding this date, were randomly assigned to either a treatment or a control group. This subject selection process continued for one year, from October, 1982 to October, 1983. Treatment group members were allowed to renew their licenses by mail. control group members were required to come to a field office and pass vision and knowledge tests in order to renew.

This interim report covers driver records over a period of 18 months following the mailing of extension statements or renewal notices. During this period, there was no evidence that the extension program as a whole resulted in either increased accidents or traffic convictions for the group offered renewal by mail, as compared to the control group.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

Program status quo was maintained, in accordance with a recommendation not to expand the program to drivers ineligible at that time until the full 4-year evaluation had been completed. The final report (#118) generally confirmed the findings of the interim report, though a crash-increasing effect of the program on a small subgroup of drivers was identified. Despite this, the program was expanded to include drivers with two-year-clean records. (It was later expanded further to include drivers with one negligent operator point within the two years prior to license expiration, but this change has not been evaluated.)

SUPPLEMENTARY INFORMATION:

Final report is Janke, Report #118.

TITLE: Development of a Comprehensive Evaluation Design and Data Collection System for Assessment of Provisional Licensing

AUTHOR(S): Catherine M. Liddicoat & William C. Marsh

DATE: October 1985

FUNDING SOURCE: Office of Traffic Safety and National Highway Traffic Safety Administration

REPORT NUMBER: 99

NTIS NUMBER: PB86-125051

PROJECT OBJECTIVE:

To develop a valid and comprehensive evaluation design and data collection method for assessment of provisional licensing in California.

SUMMARY:

This report presents plans for an evaluation of California's provisional licensing (PL) program. The proposed evaluation is divided into three separate research designs: (1) a time series analysis of accidents before and after the implementation of provisional licensing in California (2) an analysis of the driving records of samples of young licensees before and after the implementation of PL, and (3) a comparison of driving records of young drivers who received traditional or competency-based driver training before and after implementation of PL.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

The evaluation design and data collection system presented in this report were used to assess the implementation of PL in California. The outcome of this assessment was reported in two subsequent publications by Hagge and Marsh, Reports #108 (interim report to the Legislature) and #116 (final report).

SUPPLEMENTARY INFORMATION:

None available.

TITLE: Licensing Novice Motorcyclists: A Comparison of the Traffic Safety Impact of California's Standard Test and the MOST II (Motorcycle Operator Skill Test) Administered at Centralized Testing Offices

AUTHOR(S): Shara Lynn Kelsey, Catherine Liddicoat, & Michael Ratz

DATE: May 1986

REPORT NUMBER: 106

FUNDING SOURCE: Office of Traffic Safety and National Highway Traffic Safety Administration

NTIS NUMBER: PB86-247384

PROJECT OBJECTIVE:

To clarify issues raised in the Anderson et al. study, "Improved Motorcyclist Licensing and Testing Project," to answer the following two questions: 1) Would the MOST II reduce accidents and convictions when compared to California's standard skill test? 2) Would there be an accident reduction which was independent of the reduction in instruction permit and license issuance rates resulting from the inconvenience of being required to travel to another location to be tested?

SUMMARY:

Applicants for an original California motorcycle license or endorsement were randomly assigned to either a group required to pass the MOST II motorcycle skill test to be licensed (N = 30,059), or a group required to pass the standard California skill test (N = 28,211). Skill tests were administered at 8 of the 29 Department of Motor Vehicles

field offices involved in the study. The 21 other (feeder) offices referred applicants to the testing offices for administration of the appropriate skill test. All offices administered written tests and issued instruction permits to applicants who passed. MOST II subjects who made application at testing offices had 18% more motorcycle accidents and 9% more motorcycle convictions during the first year subsequent to application than their testing office counterparts assigned to the standard California program. both differences were statistically significant. There was no evidence of a difference between MOST II and standard test applicants identified at feeder offices. The report discussed these findings and recommended that the MOST II not be adopted by the Department.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:
The Department did not implement the MOST II.

SUPPLEMENTARY INFORMATION:
For a lively debate of study findings, see McPherson, K., April 1989, Motorcycle licensing research: A look at where we are, *Journal of Traffic Safety Education*, *36*(3), 6-8, Peck, R. C. and Janke, M. K., April 1989, Backfire: A reply to McPherson, *Journal of Traffic Safety Education*, *36*(4), 14 &17, and Peck R. C., July 1990, Backfire: Peck's last peck at a canard, *Journal of Traffic Safety Education*, *37*(4), 20.

TITLE: Evaluation of Driver License Knowledge Tests

AUTHOR(S): Michael A. Gebers & Robert A. Hagge

DATE: December 1986

REPORT NUMBER: Unnumbered

FUNDING SOURCE: Departmental Budget

NTIS NUMBER: None

PROJECT OBJECTIVE:
To pilot-test four of the Department's written knowledge examinations for driver licensure and provide test and item statistics.

SUMMARY:
The following written tests were evaluated:

1. 46-item test for original applicants over age 17 (DL-5, Rev. 12/84);
2. 18-item test for renewal applicants (DL-4, Rev. 7/86);
3. 46-item test for 15- through 17-year-olds (DL-5T, Rev. 8/85); and
4. 25-item motorcycle test (DL-5K, Rev. 1/86).

The pilot was conducted during September 1986 in all field offices. Tests were collected from first-attempt applicants only. The analysis yielded the following information:

1. percentage response to each item alternative, and item-total correlation, for each test form;
2. cumulative percentage of total applicants by number of items missed for each test form; and

3. fail rate, mean items missed, and test reliability for each test form.

It was recommended that a number of test forms and items be revised to achieve acceptable fail-rate and reliability standards. It was also recommended that, because the Hispanic and Asian populations were continuing to grow in California, a follow-up pilot of non-English written tests should be conducted.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:
The tests were revised to improve reliability and achieve more equal fail rates. The non-English tests have not been piloted.

SUPPLEMENTARY INFORMATION:
A 36-item DL-5 knowledge test for both original and renewal license applicants had been evaluated in July 1982 and again in July 1983. The evaluation reports are on file in the Research and Development Branch.

TITLE: Evaluation of Tour-Bus Operator Knowledge Test

AUTHOR(S): Michael Kellerman & Robert A. Hagge

DATE: November 1987

REPORT NUMBER: Unnumbered

FUNDING SOURCE: Departmental Budget

NTIS NUMBER: None

PROJECT OBJECTIVE:
To evaluate the written knowledge test for tour bus operators and to provide test and item statistics.

SUMMARY:
A pilot test was conducted in 50% of field offices from July through September, 1987. An analysis of the test forms completed by first-attempt applicants provided the following information:

1. Percentage response to each answer choice for each item on each test form;
2. Item-total correlation for each item on each test form;
3. Cumulative percentage of applicants by number of items answered incorrectly on each test form.
4. Fail rate, average number of items missed, and test reliability for each test form.

Results of the evaluation indicated that many items needed correction, the primary problem being that they were too easy. Inequities in fail rates and reliabilities were also found. Recommendations were made to correct the above problems.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:
Many of the bad test items have been revised, but the tests have not been reevaluated.

SUPPLEMENTARY INFORMATION:
None.

TITLE: Reentrant Renewal-by-Mail Drivers

AUTHOR(S): Mary K. Janke

DATE: January-March 1988

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: Unnumbered

NTIS NUMBER: None

PROJECT OBJECTIVE:

To evaluate indicators of health and vision problems in drivers returning to the field offices for driver license renewal after having had two consecutive 4-year renewals by mail (reentrant drivers).

SUMMARY:

This is a series of three monthly memo reports, produced at the request of the DMV Director, which attempted to identify health or vision problems in reentrants. Variables measured were the number of reentrants: (1) receiving a new vision or exposure restriction at their field office renewal, (2) receiving a referral for a special vision examination, (3) receiving a limited-term license, (4) requiring a P&M (physical or mental medical condition) hearing to be scheduled, (5) requiring a drive test, and (6) having a code indicating physical or mental impairment placed on their record. Tabulations of these variables were categorized by age group as below 36, 36-55, and above 55. Values for the reentrants were compared with those for the renewal-by-mail evaluation control group, who had been required to renew their licenses in the field offices by taking renewal tests. Of the variables measured, reentrants were inferior only in having more new vision restrictions and in receiving more limited-term licenses. The most likely reason for the latter finding was the greater average age of the reentrant group (50, as compared to 37 for the comparison group). The excess in new vision restrictions may only have indicated that reentrant drivers, in the 12 years since their last field office renewal, had acquired corrective lenses. There was no evidence indicating that the reentrant driver group contained any marked excess of individuals with undiscovered disabilities.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

Program status quo was maintained.

SUPPLEMENTARY INFORMATION:

None.

TITLE: Multiple License Study: Technical Appendix to AB 3262 Report

AUTHOR(S): Karen J. Chan & Marvin Hanely

DATE: June 1988

REPORT NUMBER: Unnumbered

FUNDING SOURCE: Departmental Budget

NTIS NUMBER: None

PROJECT OBJECTIVE:

In compliance with Assembly Bill 3262 (Katz), to (1) estimate the number of Class 1 and 2 (heavy commercial vehicle) drivers with more than one driver license or with an X-record on file that had not been matched to the driver, (2) perform a point-count and DUI-conviction analysis of Class 1 and 2 drivers with multiple records and estimate how much worse they would look, in terms of accidents and convictions, if their separate records were combined, and (3) analyze license class types as a byproduct of the sampling design.

SUMMARY:

About 1% of the licensed driver file was estimated to be represented by duplicate records. Of these, 4,300 (2%) were estimated to be Class 1 or 2 drivers.

The total number of duplicate records possessed by these drivers was estimated to be less than 2% of the total driver license database, containing licenses, ID's and X-records (X-records are records not identified to a California driver's license or a California ID card). Most drivers with duplicate records do not have duplicate licenses on file; instead they have a license and an X-record.

The effects of combining the duplicate records of 203 multiple-record drivers (of all license classes) were greatest on negligent operator points accumulated during a 12-month period, declining as the length of the time period increased. Percentage increases ranged from 24% for a 3-year record to 38% for a 1-year record. The effect on DUI conviction rates was a much smaller 13% increase over a 7-year period.

Heavy-vehicle drivers make up about 3% of the total California driving population. The proportion of such drivers with duplicate records is about 7 per 1,000 licensed Class 1 or 2 drivers. The duplicate rate for Class 3 and 4 drivers is similar--about 6 per 1,000.

It was concluded that the duplicate record problem involving Class 1 and 2 drivers is only a small part of a more general situation, which is primarily caused by the accumulation of X-records in the system. The report suggests that improved matching criteria be developed. However, it stresses that the vast majority of records in the driver record database are correctly linked.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

No known legislative or statutory changes resulted from this study. The Department made some alterations in file matching criteria to reduce the incidence of non-matched records.

SUPPLEMENTARY INFORMATION:

This report is the unpublished technical appendix to *Report to the Legislature on Class 1 and 2 Drivers License*, California Department of Motor Vehicles, June 1988.

The California Department of Motor Vehicles also completed a study of bioidentifiers (fingerprints and retinal scan) entitled: *Personal Identifier Project - Executive Summary*, 1990.

TITLE: An Evaluation of the Traffic Safety Impact of Provisional Licensing

AUTHOR(S): Robert A. Hagge &
William C. Marsh

DATE: December 1988

REPORT NUMBER: 116

FUNDING SOURCE: Departmental Budget &
Office of Traffic Safety

NTIS NUMBER: PB89-195515

PROJECT OBJECTIVE:

To evaluate the traffic safety impact of California's Provisional Driver License Program. The primary goal of the program is to reduce the rate of traffic accidents and traffic violations involving 15- through 17-year-olds in California.

SUMMARY:

California Senate Bill 483 (Chapter 776, 1982) authorized the California Department of Motor Vehicles (DMV) to establish a demonstration Provisional Driver Licensing Program for drivers under 18 years of age. DMV implemented this program on October 1, 1983. The legislation required that DMV evaluate this program and submit an interim report by July 1, 1986 and a final report by December 31, 1988.

For the interim report, a time series analysis of aggregated monthly accident data for January 1979 through December 1985 was conducted. Various accident rates of two age groups in California were compared: 15 through 17 years versus 24 years or older. The accident rates for adults were included in the analysis to control extraneous influences. For each type of accident, a separate intervention test was conducted for each age group. The results of the analysis suggested that provisional licensing prevented what would otherwise have been a 13.17% increase in the fatal/injury accident rate for 15- through 17-year-olds, representing a total reduction of 2,540 serious accidents each year. No significant program effects were found for total, fatal-only, or single-vehicle accident rates.

For the final report, a different method of time series analysis was used to evaluate program effects. Data for 1979 through 1986 were analyzed and the same age groups were included. For each type of accident, the accident rate series for the adult group was included as a covariate, or independent variable in the time series model. This method was generally believed to be more powerful and accurate than the approach used for the interim report. The same analysis was repeated in four other states for comparison purposes. The findings provided evidence that provisional licensing was associated with a 5.3% reduction in the rate of total accidents involving drivers aged 15 through 17, or an accident avoidance of 2,436 per year. No significant program effects were found for fatal/injury accidents, had-been-drinking fatal/injury accidents, or single-vehicle late-night male-only fatal/injury accidents. However, the trends in fatal/injury and alcohol-involved accident measures were consistent with the reduction in total accidents.

The final report also includes an analysis of the driver records of over 400,000 drivers who received an original license at ages 16 or 19. About one half of the drivers in each age group were licensed before (pre) provisional licensing, and the others were

licensed after (post) program implementation. Total accidents, fatal/injury accidents, and major traffic convictions were counted during the first 3 years subsequent to driver's 15th birthday (for 16-year-olds) or 18th birthday (for 19-year-olds). In addition, total accidents and total convictions were counted during the first 2 years following licensure. Various administrative process measures for 16- and 17-year-old licensees were also monitored, and the effect of the postlicensing control component of the program on accidents and convictions was analyzed.

It was found that provisional licensing was associated with a reduction in the average total number of accidents 3 years subsequent to 15th birthday for 16-year-old licensed drivers. The net annual accident reduction was 1,666. The findings also suggested that the program substantially decreased the rates of total convictions and convictions of serious violations among 16-year-old licensees. The effect of the program on the rate of fatal/injury accidents for this age group was not statistically significant, but was directionally consistent with a positive program effect. It was also found that the program greatly increased the number of postlicensing control sanctions (warning letters, restrictions, suspensions) applied to 16- and 17-year-olds, and the provisional postlicensing control was more effective in reducing accident and conviction rates than was the control system in use for adults.

An analysis of the effect of a shift in the type of driver training (traditional to competency-based) was also conducted. The purpose of this analysis was to separate the effect of driver training from the effect of provisional licensing. Evidence was found that the effect of the driver training shift was contrary to a positive effect of provisional licensing were probably greater than found in the program evaluation.

Based on the findings of positive traffic safety benefits of provisional licensing, it was recommended that California retain the program as a permanent policy for licensing minors. It was also recommended that consideration be given to alternative approaches for enhancing the beneficial impact of the program, such as (1) nighttime driving curfews and other restrictions, (2) extension of some components of provisional licensing to all drivers under 21 years of age, (3) stronger postlicensing control actions, and (4) more stringent competency requirements for initial actions, and (4) more stringent competency requirements for initial licensing.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

DMV has initiated a legislative proposal to give the program permanent status. As of this date, the recommendations to extend the program through age 20 had not been implemented.

SUPPLEMENTARY INFORMATION:

Information on the development of the provisional licensing program is available in Carpenter et al., Report #73, and in California DMV, Division of Driver Safety and Licensing, April 1982, *A Recommended Provisional Licensing System for California*.

A rudimentary data collection system that provided much of the information necessary for the evaluation of provisional licensing is described in Liddicoat and Marsh, Report #99.

The interim report on provisional licensing was published as Hagge and Marsh, Report #108.

TITLE: The Effect of Renewal by Mail for Drivers with less than Four-Year-Clean Records (Final Report)

AUTHOR(S): Mary K. Janke

DATE: February 1989

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: 118

NTIS NUMBER: PB86-195531/AS

PROJECT OBJECTIVE:

To evaluate the traffic safety impact of allowing drivers with a two-year-clean record, but less than a four-year-clean record, to renew their licenses by mail.

SUMMARY:

Under a demonstration program authorized by the Legislature (SB 483, 1982), almost 500,000 drivers less than 70 years of age, whose driving records showed no entries for the two years preceding the date of expiration of their licenses, and who had no major convictions or fatal accidents (but could have other driving record entries) within the four years preceding this date, were randomly assigned to either a treatment or a control group. This subject selection process continued for one year, from October, 1982 to October, 1983. Treatment group members were allowed to renew their licenses by mail. Control group members were required to come to a field office and pass vision and knowledge tests in order to renew.

The driving records of treatment and control groups were monitored for a period of four years, in order to determine whether the treatment (which resulted in administrative savings) had an effect upon traffic accidents and convictions. During these 4 years, a normal license term in California, no significant overall difference in driving records was shown between the groups. However, significant detrimental program effects on accidents were noted for a relatively small subgroup of drivers who had experienced recent traffic violations or accidents which were not on their records at selection.

A recommendation to continue, but not expand the mail renewal program—either by relaxing eligibility criteria or by allowing more than the two successive mail renewals allowed at the time of the study—was made. In addition, because omission of renewal testing did not have an overall adverse traffic safety effect, it was recommended that research into methods of improving California's driver competency assessment process be undertaken.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

Driver competency assessment research was begun, as recommended. It is currently a very active research area at DMV. The renewal-by-mail program was expanded to include drivers with two-year-clean records. (It was later expanded further to include drivers with one negligent operator point within the two years prior to license expiration, but this change has not been evaluated.

SUPPLEMENTARY INFORMATION:

Published as Janke, M. K., Safety effects of relaxing California's clean-record requirement for driving license renewal by mail. *Accident Analysis & Prevention*, *22*(4), 335-349, 1990.

TITLE: Evaluation of the Commercial Driver License Knowledge Tests

AUTHOR(S): Patricia A. Romanowicz

DATE: July 1991

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: Unnumbered

NTIS NUMBER: None

PROJECT OBJECTIVE:

To provide Program and Policy Administration (PPA) with item and test statistics useful for developing and improving the commercial driver license (CDL) knowledge tests.

SUMMARY:

This was the third evaluation of the CDL knowledge tests. The previous ones were conducted during April-May and October 1989 by Robert Hagge. The following commercial driver license knowledge tests were evaluated:

1. Commercial Driver License Knowledge Test (General).
2. Doubles/Triples Endorsement Test.
3. Tank Vehicle Endorsement Test.
4. Hazardous Material Endorsement Test.
5. Passenger Transport Endorsement Test.

Completed tests were collected from DMV field offices during the period March 19 through May 15, 1991. The following information was produced:

1. Item statistics and cumulative percentages of applicants by number of items wrong for first-attempt original applicants only.
2. Test fail rate and mean number of items wrong for both first- and second-attempt applicants (original, renewal, and total).
3. Test reliability coefficients, computed for all first-attempt applicants.

Recommendations for improving the tests were made, based on the above statistics. Some test items were found to be in need of review and possible revision or replacement. Test fail rates had decreased substantially between the 1989 evaluations and the present one.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

Some faulty test items have been revised or replaced.

SUPPLEMENTARY INFORMATION:

None.

TITLE: Evaluation of Third-Party Drive Testing of Passenger Vehicle Operators

AUTHOR(S): Robert Hagge

DATE: June 1992

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: Unnumbered

NTIS NUMBER: None

PROJECT OBJECTIVE:

To compare the driving records of passenger vehicle (PV) operators who passed a third-party (DL 170) drive test with those of PV drivers who passed a drive test administered by Department of Motor Vehicles (DMV) or California Highway Patrol (CHP).

SUMMARY:

This study analyzed the driving records of drivers who in 1989 were issued a Class A or B (heavy vehicle) license and a PV endorsement, and who had not previously held a Class 1 or 2 license (i.e., a heavy-vehicle license issued prior to implementation of California's Commercial Driver Licensing program on January 1, 1989). Analysis of covariance (ANCOVA) was used for the analysis because it enabled the criterion measures for the two groups to be statistically adjusted for group differences on gender, age, percent holding a Class A license, and 1-year prior accidents and convictions. The DL 170 group was found to have a significantly ($p<.05$) higher rate of total accident involvements in which they were operating a heavy vehicle than did the DMV/CHP group during the 2-year period subsequent to PV endorsement issuance date, both with and without the statistical adjustments (which made only negligible changes in group means). However, the two groups did not differ significantly on unadjusted or adjusted rates of fatal/injury accident and conviction involvements in which they were operating a heavy vehicle during this 2-year period.

The worse showing of the DL 170 group on total accidents may have been due to an accident reporting bias. That is, this group may have been more likely than the DMV/CHP group to have driven heavy vehicles insured by an employer during the criterion period, and therefore to have reported a higher proportion of property-damage-only accidents in these vehicles to DMV. Fatal/injury accident rates would have been relatively unaffected by such a reporting bias.

A related hypothesis is that the poorer showing of the DL 170 group may have been caused simply by their driving more in heavy vehicles during the criterion period, as a consequence of having been hired sooner than were drivers taking their endorsement test at DMV or CHP. (However, under this hypothesis, it would be expected that their conviction rate would be higher as well.)

Because this study was quasi-experimental in nature--subjects were not randomly selected and assigned to one or the other type of drive testing--no cause-and-effect relationship can be inferred from the study findings. The results could be due largely to self-selection biases associated with unknown and uncontrolled relevant driver characteristics or to characteristics involving the quantity and quality of heavy-vehicle

driving. However, the results do support a statistical association between risk and type of testing in the case of drivers obtaining a PV endorsement.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:
None.

SUPPLEMENTARY INFORMATION:
None.

TITLE: Pilot of the Driving Performance Evaluation

AUTHOR(S): Robert A. Hagge

DATE: September 24, 1993

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: Unpublished internal memo

NTIS NUMBER: None

PROJECT OBJECTIVE:
To determine the consistency of the test examiners in scoring the Driving Performance Evaluation (DPE) drive test.

SUMMARY:
This memo presents the results of an analysis of 142 completed DPE test score sheets administered in the Bellflower, Laguna Hills, Sacramento, and South Sacramento field offices during August 2-13, 1993. This study represents the second stage in a four-stage project to develop an improved competency-based drive test for possible statewide implementation. Most of the subjects were novice original first-attempt applicants; however, a small but unknown number of second-attempt and out-of-state applicants were also tested in order to increase the volume of tests. Each test was scored simultaneously by two examiners one sitting in the front seat and the other in the back seat. Seating position was switched intermittently so that an approximately equal number of drive tests were administered by each examiner in the front and back seats. The licensing decision was based on the front-seat examiners score. The interrater reliability, .68, was computed by pooling the tests administered by all examiner pairs and correlating front-seat examiner test scores with back-seat examiner test scores. This level of reliability is essentially equal to the .69 reliability obtained for the department's drive test in 1978. Several recommendations for improving the test administration procedures and scoring criteria were made, which were expected to increase the test's reliability.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:
Several improvements in the DPE were made following this pilot study. The DPE was subsequently piloted in six California field offices, and later in 30 offices in the southern California counties of Los Angeles, San Diego, and Orange. In 1996, an additional 23 offices in the 3-county area will begin using the DPE.

SUPPLEMENTARY INFORMATION:
See Ratz, Report #62, Volume I and II; Hagge, Report #150; Shumaker, Report #151; Romanowicz and Hagge, Report #154; Williams and Shumaker, (1994), unpublished internal report.

TITLE: Class C Drive Test Baseline Study: Preliminary Report

AUTHOR(S): Rickey L. Williams & Nancy C. Shumaker

DATE: April 1994

REPORT NUMBER: Unnumbered

FUNDING SOURCE: Departmental Budget

NTIS NUMBER: None

PROJECT OBJECTIVE:
To obtain descriptive statistics on 30 DMV field offices in order to select six representative sites for a follow-up evaluation of the reliability of the current Class C drive test.

SUMMARY:
Twenty-four offices were selected after stratifying larger offices on geographic region, office grade, and level of English-speaking contacts. Six additional offices, in Southern California, were included at the request of Field Operations Division. Drive test score sheets were collected for 1 week in the Spring of 1992. For the total sample, the average score was 64.7 and the mean failure rate was 30%. An analysis of variance, excluding subjects who were automatically disqualified, showed the offices to be significantly different in test scores. These differences were most likely due to real differences in applicant performance, scoring procedures, or both. An examination of item pattern profiles indicated that all but five offices had a correlation of at least .90 with the total sample of offices.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:
Six representative field offices were selected from the 30 study offices and used in subsequent studies of the current and revised Class C drive tests.

SUPPLEMENTARY INFORMATION:
See Hagge, Report #150; Shumaker, Report #151; and Romanowicz and Hagge, Report #154

TITLE: The California Driver Performance Evaluation Project: An Evaluation of a New Driver Licensing Road Test

AUTHOR(S): Robert A. Hagge

DATE: June 1994

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: 150

NTIS NUMBER: None

PROJECT OBJECTIVE:

To evaluate the reliability and validity of the Driving Performance Evaluation (DPE) drive test that was piloted in six California Department Motor Vehicle (DMV) field offices.

SUMMARY:

This report presents the results of an evaluation of a prototype on-road drive test that was piloted in six California Department of Motor Vehicles field offices. The study represents the third stage in a four-stage project to develop an improved competency-based drive test for possible statewide implementation. The test was determined to be psychometrically superior to the current drive test. Based on the dual-rater scores for 480 original license applicants taking the California drive test for the first time, the reliability coefficients for the DPE and current drive tests were .81 vs. .69 for interrater reliability, .83 vs. .66 for interroute reliability, and .78 vs. .60 for net (total) reliability, respectively.

The DPE also had construct validity as evidenced by the fact that experienced good-driver volunteers (n = 38) performed significantly better on the test than did the novice original license applicants. The fail rates and average scores (number of errors) for these two groups were 5% vs. 48% and 10.6 vs. 15.8, respectively. The evaluation also included an analysis of individual DPE maneuvers.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

Results from this study were used to make improvements in the DPE prior to its pilot implementation in 30 field offices in Los Angeles, Orange, and San Diego counties.

SUPPLEMENTARY INFORMATION:

See Ratz, Report #62, Volume I and II; Shumaker, Report #151; Romanowicz and Hagge, Report #154; Williams and Shumaker, (1994), Unpublished internal report.

TITLE: The California Driver Performance Evaluation Project: An Evaluation of the Current Driver Licensing Road Test

AUTHOR(S): Nancy Clarke Shumaker

DATE: August 1994

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: 151

NTIS NUMBER: None

PROJECT OBJECTIVE:

To gather data on the reliability and psychometric properties of California DMV's current Class C road test.

SUMMARY:

This study was the first stage of a four-stage project for developing an improved drive test in California. The results were meant to serve as a comparison-baseline for assessing the merits of subsequent modifications to the drive test. Six representative field offices were used as study sites. Each field office tested at least 50 drivers. Each driver was tested over two drive test routes by two examiners, one in the front seat

and the other in the back seat. Statistical analysis showed that test scores and test reliabilities differed significantly by office. However, the analysis of examiner fail rates within each office produced no evidence that examiners had different pass-fail rates. Using total score, interrater reliability was .69, interroute reliability was .66, and net reliability was .60.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:
None.

SUPPLEMENTARY INFORMATION:
See Ratz, Report #62, Volumes I and II; Hagge, Report #150; Williams and Shumaker (1994), unpublished internal report; Hagge (1993), unpublished internal memo.

TITLE: Evaluation of California's Commercial Driver License Program

AUTHOR(S): Robert A. Hagge & Patricia A. Romanowicz

DATE: March 1995

REPORT NUMBER: 148

FUNDING SOURCE: Departmental Budget

NTIS NUMBER: PB95-241857

PROJECT OBJECTIVE:
The purpose of this study was to evaluate the impact of the Commercial Driver License (CDL) program on fatal and fatal/injury accidents involving heavy vehicles operated by drivers licensed in California.

SUMMARY:
This report evaluates the impact of the CDL program on fatal and fatal/injury accidents involving heavy vehicles operated by drivers licensed in California. The program, which was initiated in January 1985, began a new commercial-license classification and endorsement system, implemented stronger licensing standards and more comprehensive tests of knowledge and driving competency, required drivers to report specific violations to employers, and provided for more stringent post-licensing sanctions to negligent operators. Intervention time series analysis was used for the data analyses.

The intervention time series model for fatal accidents nationwide included a control series consisting of monthly nationwide fatal accidents involving heavy vehicles operated by drivers licensed in selected states other than California. Covariates were also included in the time series modeling process in an attempt to account for any effect of extraneous variables that were not already accounted for by the control series. The analysis technique and design for the fatal/injury accidents in California was the same as that used for the fatal accidents nationwide, except that a control series was not used. A supplemental time series analysis of fatal/injury accidents in California involving heavy vehicles operated by drivers licensed in any state was also performed. This analysis, which disregarded the driver's license state, was conducted in order to avoid biases caused by licensing problems that existed before the CDL program. The results

indicate that the CDL program did not have a statistically significant effect on either fatal or fatal/injury accidents.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:
None.

SUPPLEMENTARY INFORMATION:
See Rogers, Ratz, and Janke, Report #111, and Furtado, Saenz, & Eskin, (1984), unpublished internal report.

TITLE: An Evaluation of California's Commercial Driver License Drive Test

AUTHOR(S): Nancy Clarke

DATE: May 1995

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: 149

NTIS NUMBER: PB95-267654

PROJECT OBJECTIVE:
To provide baseline data on the reliability and psychometric properties of California DMV's commercial driver license (CDL) drive test.

SUMMARY:
Nine representative field offices were used as study sites and a total of 131 drivers completed a test and a retest, varying the examiner and/or drive test routes between the two test administrations. Statistical analysis indicated that total test scores, test reliabilities, and pattern of scoring differed significantly between offices. However, within-office examiner fail rate differences were nonsignificant. Interrater reliability was .28 and interroute reliability was .51. These low test reliabilities indicated that the differences in total test scores across offices represented real differences in either applicant performance, scoring procedures, or both.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:
The test and examiner training have been revised to incorporate the DPE format validated for non-commercial (Class C) drivers (see Romanowicz & Hagge, Report #154.

SUPPLEMENTARY INFORMATION:
None.

TITLE: Vision Testing of Renewal Applicants: Crashes Predicted when Compensation for Impairment is Inadequate

AUTHOR(S): David F. Hennessy

DATE: June 1995

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: 152

NTIS NUMBER: PB96-131263

PROJECT OBJECTIVE:
To assess the validity of a prototype drive test piloted in 30 California Department of Motor Vehicles field offices.

SUMMARY:
This study addresses the enhanced vision test system component of a departmental plan to increase the competency level of the California driving population. Six experimental vision tests were administered to 3,669 randomly selected Class C renewal applicants in three field offices. Hierarchical multiple regression analyses indicated that whether and how much poor vision test performance is predictive of crash involvement varies, depending on the examinee's age, general visual ability, and reported level of self-restriction. It was recommended that (1) management consider referring all DMV Snellen test fails to a vision specialist through the DL 62 process, (2) cross-validate the most promising tests (Pelli-Robson contrast sensitivity and perceptual reaction time assessment) in a large-scale demonstration project, and (3) continue research on developing improved assessment tests and protocols for drivers with age-related impairments

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:
Under Management Review.

SUPPLEMENTARY INFORMATION:
None.

TITLE: An Evaluation of the Validity of California's Driving Performance Evaluation Road Test

AUTHOR(S): Patricia A. Romanowicz & Robert A. Hagge

DATE: August 1995

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: 154

NTIS NUMBER: PB96-118179

PROJECT OBJECTIVE:
To assess the validity of a prototype drive test piloted in 30 California Department of Motor Vehicles field offices.

SUMMARY:
This report presents findings of an evaluation of the Driving Performance Evaluation (DPE) road test that was piloted in 30 California Department of Motor Vehicle field offices. The study represents the fourth stage in a four-stage project to develop an improved competency-based drive test for possible statewide implementation. This study assessed the validity of the DPE in three field offices, and provides general descriptive statistics on the DPE testing process in the 30 offices.

Validity subjects were drawn from applicants administered the DPE for the first time in the Fullerton, West Covina, and Westminster field offices. The 3,505 subjects consisted of: novice original driver license applicants taking a California drive test for the first time; original license applicants previously licensed in another state and taking a California drive test for the first time; reentrant license renewal applicants who received a good-driver "congratulations" letter and, therefore, were not required to take an 18-item written test; renewal license applicants who were required to take an 18-item written test; licensed drivers involved in three or more traffic accidents in 1 year; limited-term license renewal applicants taking a drive test for the first time on the current license renewal application.

The DPE was found to have construct validity as demonstrated by experienced good drivers having had significantly lower fail rates and mean point scores than did inexperienced drivers and drivers with physical or mental disabilities that affected their driving. Additional analyses found that applicant status (novice original vs. congratulations renewal) was significantly correlated with pass/fail result and with point score, indicating that novice originals failed the test more often and made more errors than did the congratulations renewal group.

The evaluation in the 30 offices found the DPE to be more difficult than the current drive test, with fail rates of 45.6% and 26.2% for the two tests, respectively. The DPE was also found to take 11 minutes longer to administer than did the current drive test. Average test time was found to have increased for 13.6 minutes for the current test to 24.8 minutes for the DPE, an increase of 11.2 minutes. The impact on test validity of several modifications to shorten the DPE test time was also evaluated.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

Four more offices have begun using the DPE, and an additional 23 offices will begin using it in 1996. The Turn & Stop skill test DPE has been dropped in an attempt to reduce the average DPE test time by 5 minutes. There are plans to eventually expand the DPE to the entire state.

SUPPLEMENTARY INFORMATION:

See Ratz, Report #62, Volume I and II; Hagge, Report #150; Shumaker, Report #151; Williams and Shumaker, (1994), unpublished internal report; and Hagge, (1993), unpublished internal memo. A paper summarizing this and related projects appears in *New to the Road: Reducing the Risk of Young Motorists*, Youth Enhancement Services, UCLA, 1996 (Peck, R. C., pp. 95-101).

TITLE: Evaluation of California's Special Drive Test Program

AUTHOR(S): Robert A. Hagge

DATE: September 1995

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: 160

NTIS NUMBER: PB96-144324

PROJECT OBJECTIVE:

Evaluate the department's special drive test program.

SUMMARY:

This report presents results of an evaluation of the department's special drive test (SDT) program. A total of 407 forms used to refer drivers for an SDT and to score their performance on the test were collected over a 2-week period in October 1993 from 82 field locations. The driver records for these subjects were also analyzed. The results showed that the SDT had a fail rate of 31.1% and an internal-consistency reliability of .88. The vast majority (3/4) of SDT referrals were not recommended for a license restriction (e.g., no night driving), although 96% of SDT fails were under license suspension or revocation sometime during the 6 months following SDT testing. The driver record analysis revealed that the 3-year prior total accident rate for SDT subjects was 3 times higher than that for drivers of the same age and sex in the general driving population. For 3-year prior total citations, the rate for SDT subjects was nearly twice as high as the standardized rate for other drivers. The 3-year prior accident rate for SDT fails was not significantly different from that for SDT passes, but SDT fails had a significantly lower 3-year prior total citation rate than did SDT passes.

It was concluded that (1) available treatments (e.g., license restrictions) for incompetent drivers referred for an SDT are underutilized, (2) the SDT is not effective in discriminating between low- and high-risk drivers, and (3) the SDT program appears to reduce accident risk for drivers who fail the test but not for those who pass. It was recommended that a unified policy directive be developed that would address the objective of the SDT and specify the criteria to be used for referring applicants for an SDT, scoring the test, and translating test performance into a licensing decision.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

The SDT is being reviewed and will be revised around the Driving Performance Evaluation drive test model.

SUPPLEMENTARY INFORMATION:

See Hagge, Report #150; Shumaker, Report #151; and Romanowicz and Hagge, Report #154. This report and related projects are summarized in a paper by Peck, R. C. (1996) in *New to the Road: Reducing the Risk of Young Motorists*, Youth Enhancement Services, UCLA, (pp. 95-101).

TITLE: Evaluation of the Class C Driver License Written Knowledge Tests

AUTHOR(S)

Report #1: Scott V. Masten

DATE: January 1998
REPORT NUMBER: 173
NTIS NUMBER: None

Report #2: Scott V. Masten

DATE: March 1999
REPORT NUMBER: 182
NTIS NUMBER: None

FUNDING SOURCE: Departmental Budget

PROJECT OBJECTIVE:

This project was done as a part of an ongoing attempt to improve the department's Class C driver license written knowledge tests by periodically evaluating the tests and providing item and test statistics. Specifically, the studies assess the fail rate, mean number of items missed, and internal-consistency reliability for each test form, as well as the pass rate, percentage of applicants selecting each answer choice, and item-total correlation for each item on each test form.

SUMMARY:

Report #1 (January 1998): This study evaluated the English DL 5 (Rev. 3/96), Spanish DL 5 (Rev. 7/95), and English DL 5T (Rev. 3/96) Class C driver license written knowledge tests. A large number of items on each test form were found to be potentially deficient due to a low item-total correlation, a pass rate that was too high or too low, or a distractor selection rate that was too high or too low. Many of the low pass rate (highly difficult) items were poorly worded. Some field offices administered the back of the DL 5 to renewal applicants, which is inconsistent with department policy in the Driver License Manual. The report also documents a number of problems in compliance with departmental testing policy.

Report #2 (March 1999): This study evaluated the English DL 5 (Rev. 10/98), Spanish DL 5 (Rev. 5/98), and English DL 5T (Rev. 8/98) Class C driver license written knowledge tests. Major modifications were made to the tests since the last evaluation, including dropping one answer choice for each item and adding a large number of new items to create new test forms, and the purpose of this evaluation was to determine the effects of these changes and obtain item statistics for the newly created items. The fail rates for all the tests were again found to be higher than historical fail rates for the department, and as would be expected on the first iteration of evaluating so many new items, a large number of items on each test form were found to be potentially deficient due to a low item-total correlation, a pass rate that was too high or too low, or a distractor selection rate that was too high or too low. In addition, some forms were much more difficult than others, the reliability of the renewal tests was found to be inadequate, and the pattern of correct answer choices deviated significantly from what would be expected if they were truly randomized.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

Report #1: The tests were extensively modified based on the findings of this report. An answer choice was dropped from each item, the majority of the items were rewritten, and a large number of new items were created for additional test forms. In addition, the department started "randomizing" the order of the items on each test form and the answer choices for each item every 3 months.

Report #2: A task force was created to review and rewrite all the test items.

SUPPLEMENTARY INFORMATION:

See also: An Evaluation of California's Drivers Licensing Examination, R&D Report #51; An Evaluation of the California Driver Knowledge Test and the University of Michigan Item Pool, R&D Report #52; The Effects of Adding Safe Driving Content to

Written Law Tests Administered to Original Drivers License Applicants, R&D Report #65; Results of the 1986 Pilot of Four Written Driver License Tests, Hanging File #105.

TITLE: Evaluation of the Redesigned DL 44 Driver License Application Form

AUTHOR(S): Scott V. Masten

DATE: March 1998

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: 174

NTIS NUMBER: None

PROJECT OBJECTIVE:

The purpose of this study was to evaluate the redesigned DL 44 (Rev. 6/97) driver license application form. The Business Process Reengineering team revised the DL 44 to make it more user friendly, simplify the form's language, and remove redundant or unneeded information. One of the changes combined the two vision and physical/mental (P/M) condition questions into a single question on the revised DL 44. The purpose of the current study was to assess whether the percentage of applicants self-reporting P/M conditions that could affect their ability to drive safely was reduced by combining the vision disorder and P/M condition questions into one question on the redesigned form.

SUMMARY:

Due to the low statistical power and sample size of the study, we could neither reject nor confirm that the changes in the DL 44 format reduced the proportion of applicants self-reporting a vision or other P/M disorder. The results were nonetheless more consistent with a moderate (22%) reduction in the percentage of identified problem cases than with the hypothesis of no effect. However, the elimination of the separate question relating to drug and alcohol use on the 12/96 revision of the DL 44 combined with the effects of the current changes to the DL 44 resulted in a significant (31%) reduction in the total percentage of applicants self-reporting P/M disorders. This represented 3,400 fewer problem cases being identified each year, of which 1,400 are alcohol/drug cases.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

Based on the findings the department is reinstating a stand-alone question on the DL 44 regarding whether the applicant is a habitual drug/alcohol user.

SUPPLEMENTARY INFORMATION:

The format used for the reinstated question was based on findings from Janke's Alcohol/Drug Abuse Question Pre-Pilot Study, R&D hanging file #76.

TITLE: Preliminary Evaluation of the Referral Driving Performance Evaluation Program

AUTHOR(S): Scott V. Masten

DATE: May 1998

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: 176

NTIS NUMBER: None

PROJECT OBJECTIVE:

The purpose of this study was to evaluate the Referral Driving Performance Evaluation (RDPE) process to determine whether the program guidelines were being followed, particularly the appropriate use of license restrictions and revocations following test failure. This preliminary study was designed to identify and correct problems in the initial implementation of the new test.

SUMMARY:

The RDPE failure rate was found to be much higher than that obtained for the Special Drive Test (SDT) in Hagge's 1995 evaluation. The majority of RDPE test failures resulted from critical driving errors. Nearly 1 in every 4 drivers in the study were identified as having already failed one or more prior drive tests. The freeway portion of the tests was waived for more than 50% of subjects, yet a freeway restriction was imposed on only 4%. The examiners also very rarely used other types of licensing restrictions. The examiners failed to take an action for the majority of RDPE cases, which included not revoking the majority of drivers deemed to be unsafe. A tightening of RDPE procedures to lower the retest rate and increase the use of license restrictions and revocations was recommended.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

A task force was subsequently convened to consider revisions to the RDPE program and guidelines. Such changes have not yet been implemented.

SUPPLEMENTARY INFORMATION:

See also: Evaluation of the Referral Driving Performance Evaluation Program—Follow-up Report, R&D Report #177; Evaluation of California's Special Drive Test Program, R&D Report #160; Evaluation of the validity of California's Driving Performance Evaluation Road Test, R&D Report #154; The California Driver Performance Evaluation Project: An Evaluation of a New Driver Licensing Road Test, R&D Report #150.

TITLE: Evaluation of the Referral Driving Performance Evaluation Program—Follow-up Report

AUTHOR(S): Scott V. Masten

DATE: December 1998

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: 177

NTIS NUMBER: PB99-129165

PROJECT OBJECTIVE:

This study evaluated the safety impact of the new Referral Driving Performance Evaluation (RDPE) drive test program.

SUMMARY:

The 3-year prior accident and citation rates for drivers taking the RDPE drive tests were compared to the general driving population and to drivers who passed the Special Drive Test (SDT) in an earlier DMV study. The results indicated that in every age and gender category except one, drivers in the RDPE program had much higher prior accident and citation rates than did drivers in general. This finding supported the department's policy of testing drivers referred for medical and other reasons. The prior accident rates for drivers who passed the RDPE tests were not significantly different from those for drivers who failed the tests. Hence, the validity of using RDPE test results as indicators of accident risk was not supported by the data. Contrary to expectation, drivers who passed the RDPE tests also had accident rates similar to those for drivers who passed the SDT, which indicated that the RDPE tests were no better than the SDT at distinguishing between higher- and lower-risk drivers. However, because the RDPE tests fail a much higher percentage of referral drivers than does the SDT, the program does produce accident savings. A possible reason advanced for failure to show a correlation between test score and accident rate was the absence of mileage data and the inability to compare the groups in terms of accident rate per mile driven.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

A task force was subsequently convened to consider revisions to the RDPE program and guidelines, none of which have been implemented to date.

SUPPLEMENTARY INFORMATION:

See also: Preliminary Evaluation of the Referral Driving Performance Evaluation Program, R&D Report #176; Evaluation of California's Special Drive Test Program, R&D Report #160; Evaluation of the validity of California's Driving Performance Evaluation Road Test, R&D Report #154; The California Driver Performance Evaluation Project: An Evaluation of a New Driver Licensing Road Test, R&D Report #150.

TITLE: Evaluation of the Delegated Drive Test Pilot Program: Technical Appendix

AUTHOR(S): Scott V. Masten

DATE: December 1998

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: 178

NTIS NUMBER: PB2000-102400

PROJECT OBJECTIVE:

The objective of the study was to evaluate the safety impact of allowing private driving schools to administer the drive test for original licensure.

SUMMARY:

This study evaluated the safety impact of allowing driving schools to administer the Driving Performance Evaluation (DPE) to provisional license applicants. The results of the driver record comparisons between provisional applicants tested by the driving schools and those tested by DMV did not indicate a statistically significant difference in the 6-month post-licensure accident or citation rates for the groups. Unfortunately, inadequate sample sizes and the potential biases present in the study preclude drawing

any firm conclusions regarding the comparative safety impact of private versus DMV testing. However, the results of the scoring consistency and reliability analyses are more interpretable and less subject to these problems. The comparisons of scoring consistency between driving school and DMV examiners indicates that the driving school examiners followed the DPE scoring criteria less stringently than did the DMV examiners, and were far more lenient, having passed many applicants who subsequently failed the drive test at DMV. Although these findings also require qualification, it is very unlikely that differences of the magnitude observed can be attributed to bias alone. The low volume of subjects, which was a major reason for the low statistical poser of the analyses, may indicate that the market for delegated testing is small, both within the general public and the driver training industry itself.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

No definitive conclusions regarding the safety impact of privatizing the drive test can be inferred from the study findings because of limitations and potential biases present in the study. However, the finding that the driving school examiners were far more lenient in scoring the road test, having passed many applicants who subsequently failed the drive test at DMV. It was recommended that any reconsideration of privatizing the road test should reflect a broad array of policy-analytic considerations. The specific model of privatization evaluated in this study does not appear to offer much potential in terms of benefit-cost tradeoffs.

SUPPLEMENTARY INFORMATION:

A legislative bill to extend the privatization of the drive test failed to pass in the Legislature.

TITLE: An Evaluation of the Impact of California's Driving Performance Evaluation Road Test on Traffic Accident and Citation Rates

AUTHOR(S): Michael A Gebers, Patricia A. Romanowicz, & Robert A. Hagge

DATE: December 1998

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: 181

NTIS NUMBER: PB99-134777

PROJECT OBJECTIVE:

To determine whether the new drive test, called the Driver Performance Evaluation (DPE), resulted in a decrease or increase in the risk of traffic accident involvement and/or law violations subsequent to license application.

SUMMARY:

This evaluation is the final stage of a project to develop and evaluate the DPE for possible statewide implementation in California. This study and the earlier studies in the series are part of a more extensive effort by the department to increase the competency of California motorists by improving the driver licensing process.

Previous evaluations of driving tests have measured the correlation between test scores and subsequent accident rates. In contrast to previous studies, this evaluation was designed to determine whether applicants who are required to pass the DPE exhibit lower subsequent traffic accident and citation rates than do applicants who take the standard test. That is, this evaluation attempted to measure a treatment effect (e.g., accident reduction) rather than a correlation between test performance and accident rates.

Four independent groups of original driver license applicants were selected for the study: (1) 136,135 applicants who were administered the DPE in the 30 southern California field offices that had implemented the new test, (2) 110,412 applicants who were administered the standard drive test in the same 30 California field offices before implementation of the DPE, (3) 63,125 applicants who were administered the standard drive test in a comparable group of northern California field offices during the same time period before implementation of the DPE, and (4) 84,429 applicants who were administered the standard drive test in the same northern California field offices during the same time period after implementation of the DPE.

Logistic regression analysis was used to compare the study groups on total traffic accidents, fatal/injury accidents, and total traffic citations during the 2 years immediately following driver license application. The primary effect of interest in the analyses was the relationship or interaction between region and time of application. This interaction effect addresses whether the change in accident risk for southern offices following implementation of the DPE differs from that for northern offices over the same time periods.

The results failed to demonstrate a significantly greater safety benefit for the DPE test than the standard road test. None of the differences between the two test groups on the three post-application driver record measures approached statistical significance. Although there was a very slight trend for those assigned to the DPE test to have a reduced odds (1%) of being accident involved in terms of total reported accidents, the comparison on fatal/injury accidents showed no difference in odds. The very small variations between the groups on the subsequent driver record measures is consistent with the null hypotheses of no measurable differences in the relative safety impact of the two testing programs.

Subsequent to the initiation of this study, the department reduced the length of the DPE and eliminated the freeway component due to budgetary constraints. Because the DPE as evaluated in this study is longer than the standard road test and had additional maneuvers, such as a freeway driving component, it is a more costly program requiring a more extensive allocation of resources than is required for the standard road test. The failure to demonstrate any bottom line benefits to offset program costs makes it difficult to recommend that the department reinstate the freeway maneuvers and expand the original DPE statewide. However, there is no question that the method of testing (route selection and scoring procedures) produces a more reliable and "content-valid" test than does the current testing procedure. It was therefore recommended that the department expand the DPE scoring procedures to all offices in the state.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:
Under review as of this writing.

SUPPLEMENTARY INFORMATION:
See Ratz, Report #62, Volumes I and II; Romanowicz and Hagge, Report #154; Hagge, Report #150; Shumaker, Report #151; Williams and Shumaker, (1994), unpublished internal report; and Hagge, (1993), unpublished internal memo; Peck, (1994), unpublished internal report. A paper summarizing this and related projects appears in *New to the Road*: *Reducing the Risk of Young Motorists*, Youth Enhancement Services, UCLA, 1996 (Peck, R. C., pp. 95-101).

TITLE: Development and Evaluation of Revised Class C Driver License Written Knowledge Tests

AUTHOR(S): Eric A. Chapman & Scott V. Masten

DATE: May 2002

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: 196

NTIS NUMBER: None

PROJECT OBJECTIVE:
This project was done as a part of an ongoing attempt to improve the department's Class C driver license written knowledge tests by periodically evaluating the tests and providing item and test statistics. Specifically, the studies assess the fail rate, mean number of items missed, and internal-consistency reliability for each test form, as well as the pass rate, percentage of applicants selecting each answer choice, and item-total correlation for each item on each test form.

SUMMARY:
This report presents the results of an evaluation of English and Spanish language Class C license written knowledge examinations administered to applicants for an original or renewal driver licenses. The tests were extensively modified following the 1999 statewide evaluation (Masten, 1999). The study assessed the fail rate, mean number of errors, and internal-consistency reliability for each test form, as well as the pass rate, percentage of applicants selecting each answer choice, and item-total correlation for each item on each English language test form. The results are based on 10,502 completed test forms that were collected from field offices statewide in April 2001. It was found that the test fail rates for all tests decreased from the last statewide evaluation. However, the disparity in fail rates between the English and Spanish tests increased, with the rates for Spanish applicants continuing to be substantially higher than the rates for English applicants.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:
Revise and rewrite test questions based on the findings of this report.

SUPPLEMENTARY INFORMATION:
See also: Evaluation of the Class C Driver License Written Knowledge Tests, R&D Reports #173 and #182.

TITLE: The Effectiveness of Home-Study Driver Education Compared to Classroom Instruction: The Impact on Student Knowledge, Skills, and Attitudes

AUTHOR(S): Scott Masten & Eric Chapman

DATE: April 2003

FUNDING SOURCE: Departmental Budget

REPORT NUMBER: 203

NTIS NUMBER: PB2004-101495

PROJECT OBJECTIVE:

Compare the knowledge and skill levels and safe driving attitudes of teenagers who complete driver education in the classroom with those of teenagers who complete a interactive computer based home-study course or a paper-based workbook course.

SUMMARY:

Almost 1,500 students were randomly assigned to receive classroom instruction, a CD ROM home-study course, a workbook home-study course, or an internet/workbook home-study course. Few differences were found on exit exam knowledge and attitude scores, but the differences tended to favor the CD and internet/workbook home-study courses over the workbook or classroom courses. Differences favoring classroom courses on departmental written test outcomes likely reflect bias in such courses towards teaching test-specific material. The findings present no compelling evidence that home-study courses are less effective than classroom courses for teaching driver education. The findings could result in more widespread use of home-study courses for teaching driver education.

IMPLEMENTATION STATUS OF FINDINGS AND RECOMMENDATIONS:

No recommendations were made in the report.

SUPPLEMENTARY INFORMATION:

None.